NEVARC NEWS VK3ANE

December Christmas Party Lunch
2.00 pm Saturday
19th December
Birralee Tavern
97 Melrose Drive, West Wodonga
Financial members and their other halves get a feed on the club
Financial members have been contacted by email, so better get your RSVP on its way

It's all finished… maybe

The words "it's all finished" when spoken by a ham radio operator may not always be true.
The XYL certainly doesn't believe me.
Being restricted in what you can do with this crazy pandemic, it's either build something, or start drinking grog.
The XYL gives the blessing to radio projects every time, in lieu of my suggested alternative.

ON AIR WARNING

While most people visiting the shack would be aware of Amateur Radio Television, a warning of when it's on air is handy, so people know that Melbourne is watching them live on TV.
That's when were allowed to have visitors again…
I ordered an "On Air" sign that is mains powered.
Scared of mains getting back into the ATV TX, a relay was used to switch 240 volts to the sign when transmitting live television.

Sign at room entrance hanging from the bookcase →
Illuminated only while transmitting live television

BACKYARD AMATEUR TELEVISION IMPROVEMENTS

When sending pictures from the back yard, it involves grabbing a camera, tripod, cables and taking it there setting up and packing up, not really a big deal, but I thought how can I improve, as in make it less work.
I decided if the dome camera in the shack is reasonably cheap and gives a wide field of view; why not use some in the back yard. Being security cameras they will tolerate being outside, IP66 rating.
The 1080P dome camera I previously got is a camera only, no audio.
So another audio cable run was required, unless I am using the wireless microphones I have.
I wanted to use the same microphone preamp in the shack, as it's very sensitive, so another shielded cable will need to be run under the house.
This way when I want to operate ATV outside, it's just walk out there; throw a switch, ready to go.
The spare camera on the tripod is then always ready to go portable, or be an extra camera when I need a particular area to view, like the BBQ plate cooking something tasty.

CAMERA PLANNING

The dome cameras are simple, no pan, tilt or zoom.
So I wanted the best practical view.
The back deck is under cover so that provides protection from rain and long term damaging sunlight.
Running cables is the time consuming task.

The dome camera has a small joystick that navigates you through a text menu on screen so pick the settings you want.
The dome camera has either CVBS, CVI, TVI or AHD.
It has inbuilt LED for night time, but I don't use it.
They say 12 volts, so 13.8 volts does the job, but I do put ferrite filters on them to keep a clean picture so they are RF tolerant.
Half the price of webcams.

The camera out of the box →

ANOTHER MICROPHONE ALTERNATIVE

I had some spare thin coax, so used that as shielded microphone cable to extend the input from the shack audio preamp, so I can switch between microphones when I go outside. The coax was just the right length with only inches spare after it was run under the house. As the preamp is very high gain the outside microphone does not have to be right in front of my face to use. But I have wireless microphones also to choose from if necessary.

Microphone and exposed wires before cover →
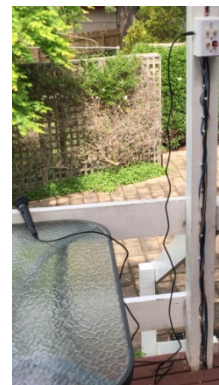
PERMANENT DOME CAMERAS

Installation was quick and easy, running cables is the fiddly bit.
Instead of separate video cables back to the shack I used one of the existing cables and use an 8 port video switcher. I only need 2 ports, but they are the same price, so some future capacity, if needed one day.
As I walk around the yard I can switch cameras locally to follow the action, no need to walk back inside to the radio room in the house.

One of the cameras pointed at the deck table, also before conduit placed over all the exposed cables
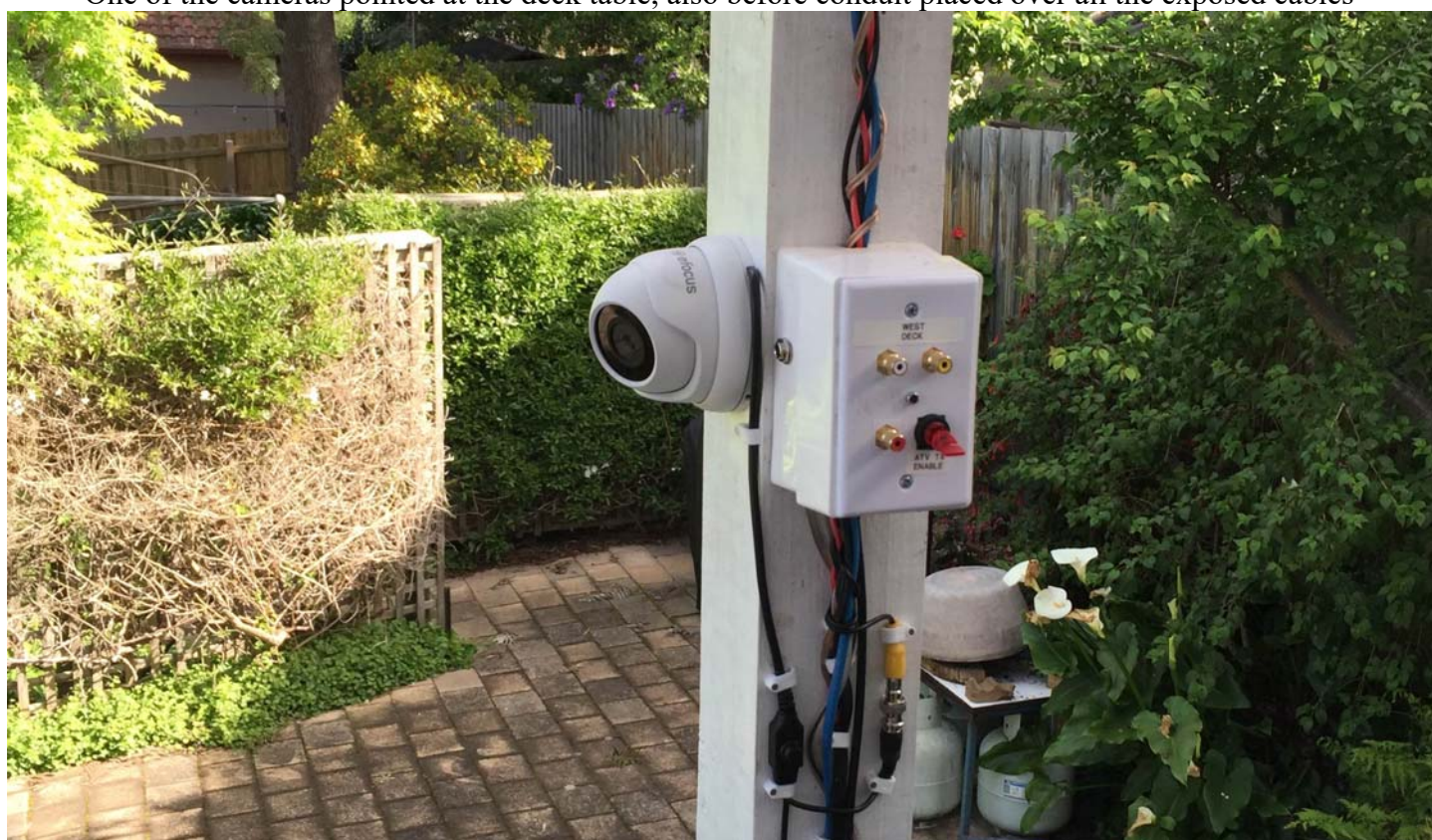
The other camera looking towards the BBQs

ANOTHER CABLE RUN UNDER THE HOUSE

Local testing of the dome cameras to the TV nearby was successful, but getting a clean signal back to the shack via the video over Ethernet link had a scrambled picture with both cameras.

Running some temporary plain video cable through the house had a perfect picture, so another run of thick video cable under the house was done. But its length needed extending, no problem, I had more video cable and joiners. With two cameras used another six could be installed and switched locally outside but two will do for now. There are also the original two video / audio cables runs, for the camcorder on the tripod, so the backyard is well covered for amateur television.

8 way video / audio switcher box

Camera 1, looking at the deck table
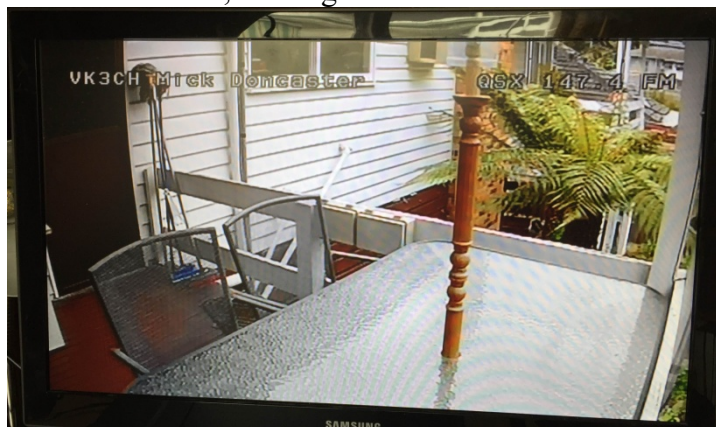
Camera 2, looking at BBQ yard area

TIME TO TIDY IT UP

With all the additions over time the cables have grown and are becoming an eyesore.

Bunning's have a wide range of electrical conduit, I wanted one that has a clip on top cap so it could be installed without removing any wiring, I used this at the last install at the previous warehouse.

You can also remove the clip on covering if any new cables need to be added later, something very likely to happen around here.

After measuring the thickness of the wiring loom 50mm x 25mm was the best choice, the flat conduit comes in 4 meter lengths, one was enough and you have to curve it, to get it into the car.

A few hours later and the job was complete and looking good.

WET WEBCAMS

I had webcams (not dome cameras) outside in the backyard that could be switched and viewed live on ATV.
After a few weeks later my computer refused to boot up properly.
All the signs were hassles with the boot sector, but further tests proved this was not the case.
Then I thought the motherboard was about to take early retirement, but then one day I heard the USB plug in – unplugged sound.
Suspicion turned to USB devices.
The easiest fault trace was to unplug the USB Hub and then the computer booted up fine.
Next job was to see what out of the 7 devices in the hub was faulty.
I thought to start with the lead going outside and sure enough with that removed all the problems stropped.
The lead was going outside to the webcams at the back deck.
These webcams have since been moved inside to the shack, they function fine now and perhaps they dried out.

MORE VIDEO DOME CAMERAS

After using the two outside dome cameras for a few weeks, the convenience of having set dome cameras ready to use outside was evident. As the 8 way Video/Audio switcher had six spare ports, I figured six more dome cameras may as well be installed.
Buying in bulk with the Altronics discount offered by the WIA got me six dome cameras for the price of five.
The next job was to determine the best placement for six more electronic "eyes" in the backyard.
Most of the extra cameras give different views of the back deck.

Camera 3 installed on far west wall side

Camera 3 view of back deck to VK3RTV

Camera 4 installed on a post

Camera 4 view looking towards BBQs to VK3RTV

BBQ CAM

But my favourite is the BBQ camera or "BBQ Cam". Getting a close view of one of the BBQ's required placing a dome camera on a mast.

The logistics of keeping rainwater off the camera involved some protection, but the camera say they are rated for outdoor use.
Another trip to Bunning's sourced all the bits.
Sealant heat shrink tubing was used to help keep any moisture out.

Getting the camera perfectly vertical and straight was the hard part and placing the star picket posts into the ground, without mucking up the vertical angle.

Another part to waterproof is the cable join to the camera for both power and video.

The camera on the mast ready to be installed →
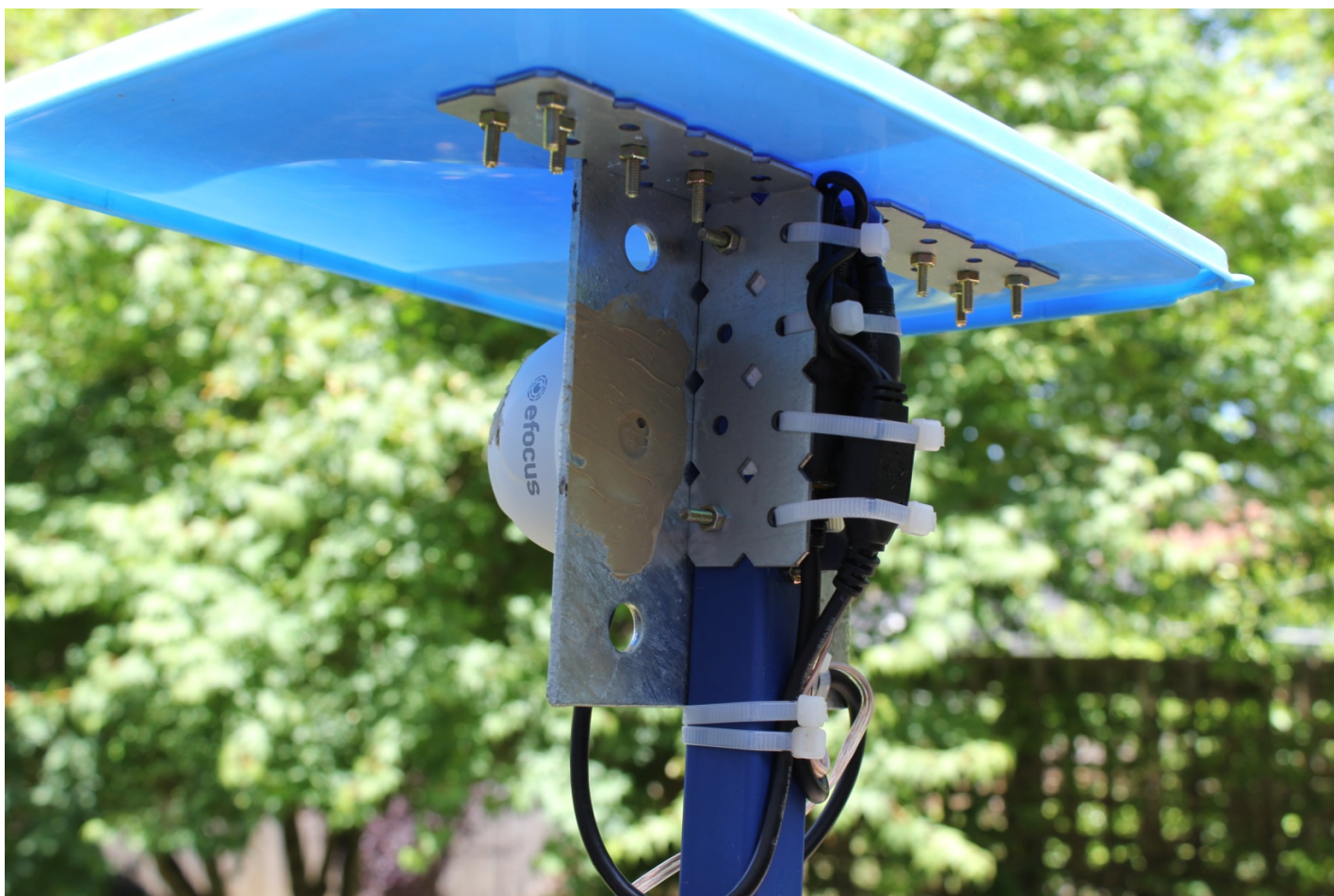
Dome camera cable joins waterproofed, hopefully top water cover will last a few summers before replacement

"BBQ Cam" installed ready to live telecast

"BBQ Cam" installed and ready to live telecast some cooking this summer on VK3RTV

A FEW MORE CAMERAS

The 8 way AV switcher had three more slots left, but just one more camera was installed, we have enough coverage of the back yard now. The other two cameras might get put in the shack a job for the future.

Camera 6 looking west on the deck

Camera 6 live to VK3RTV

LABELLING THE 8 WAY AUDIO / VIDEO SWITCHER BOX OUTSIDE

It's easy to forget which cameras to switch to. I made up a label in 35 point type, to get the 15mm spacing between the switches. It was then laminated it to survive outside.

Currently the dome cameras are;

1 Table View, 2 West Fence View, 3 Mast BBQ View, 4 East Deck View, 5 BBQ Overhead View and 6 West Deck View

~Mick VK3CH

PETER COSSINS PLANNED FUTURE IMPROVEMENTS TO VK3RTV

As a result of previous tests, the paths to a more versatile HD receive system is clear.
To complete the conversion, a major cost will be to upgrade the SR Systems Exciter.
A feature of our Melbourne VK3RTV Repeater is the two channel functionality.
For this we need to replace the two MPEG2 Encoders with HD Units and a new Mini Mod for DVB/T/T2.
The existing MUX will work and can be retained.
Peter Cossins made an announcement detailing the upgrade path during one of the Tuesday evening ATV Nets.
He is already half way towards a budget for the expensive SR Systems Encoders and Minimod.

The system envisaged for VK3RTV is completely DVB-S and S2 compliant so no station will be disadvantaged other than perhaps a new Set Top Box for receiving such as the Strong SRT 5434. Even the DVB-S signals will be improved as they now will be routed directly.

Looking for any further support for this final major step at Mount View, both Standard Definition and High Definition and able to accept all types of amateur DATV DVB-S or DVB-S2 Encoders.
As VK3RTV will be converting to DVB-T2 in the next few months, Peter Cossins is starting a new list of Set Top Boxes that will manage DVB-T2. VK3RTV may be up on T2 before the commercials TV stations are.

TECHNICAL CONSIDERATIONS WITH DVB-T2

Commercial Free to Air TV Stations will not be able to move to DVB-T2 without Federal Government involvement. It will be a "courageous decision Minister" as Sir Humphrey would say, since millions of TV's would become obsolete overnight, a political hot potato. Still if the Federal Government provided a "TV technology upgrade" subsidy of say $1500 = the COVID-19 grants, Harvey Norman, et al, would no doubt be delighted! As of now in Melbourne, all TV broadcasters have only 4 channels, except SBS which has 5, NITV is their add-on, plus of course their "radio" channels.

T2 is the new and improved second generation of the DVB-T standard. DVB-T2 is able to provide more data faster. More data means more channels and services. DVB-T and DVB-T2 are both standards for transmitting live digital television. DVB-T2 is being considered as a technology which could replace the current DVB-T standard for television which has been in operation since 2001. When combined with new compression technologies, DVB-T2 will have the potential to allow 4K TV reception with four times the picture quality of the current high definition standard.

Both can accept a MPEG2-TS - an MPEG-2 Transport (bit) Stream - and deliver the same bit-steam at the receiver - error free. The bits that form the payload of the transport stream can be interpreted as MPEG2/MPEG4 video, as audio encoded with different codecs - MEPG1 level 2 (MP2), HE-AAC, Digital Dolby etc, as teletext or subtitles, as EPG program guides, as firmware downloads for receivers etc.....

Note MPEG2-TS has no relation to MPEG2 video compression, but was named in the 1990's where MPEG2 was a common prefix for everything related to digital video.
Nor has the DVB transmission standards any direct relation to MPEG-2 or MPEG-4 video compression - DVB-T can carry MPEG-4 and DVB-T2 can carry MPEG-2 - it is even likely it will at some stage.

DVB-T2 allows a more general form - the Generic Stream Encapsulation or GSE - which is designed for general use including for IP data (TCP/IP) and it adds less overhead. For TV broadcast MPEG2-TS is currently used by both standards - as this is a better known format to broadcasters. But GSE is part of DVB-S2 now and will be part of the new cable standard DVB-C2 as well.

While the MPEG2-TS is unchanged - almost everything about cutting the bit-stream into pieces converting these pieces into radio waves and assemble everything correctly at the receiver - is new and/or used differently with DVB-T2.

Some parts of the transmission system are unchanged:

• The VHF/UHF frequency channels can be the same 8 MHz channels used by DVB-T. 7 MHz and 6 MHz are likewise supported. 5 MHz channels are specified in both standards.
• New with DVB-T2 standard is the 1.7 MHz channel that will fit directly into a T-DAB channel allocation.
• The RF power amplifiers, TX antennas and the TX mast/tower are all unchanged.
• The specifications for RX aerials/antennas and masthead amps are unchanged.
• Most of the SI signalling is unchanged - except for a few new codes that only will be present in DVB-T2 transmissions.

Some of the main differences are:

• Transport streams - that each can carry more multiplexed bit-streams - can be allocated to Physical Layer Pipes or PLP's. Each PLP can be encoded with its own QAM modulation and FEC protection - some can be highly protected, but have low useful bit-rate while another PLP can have less protection and a high bit-rate - all on the same DVB-T2 multiplex.
• DVB-T2 uses a very much stronger Forward Error Correcting code - the LDPC/BCH code. DVB-T uses the rather weak Viterbi algorithm followed by a ReedSolomon code. The RS code itself uses 8% of the bit-rate, while the BCH code used with DVB-T2 just uses 0.2-0.3%.
• DVB-T2 allows many more FFT modes 1k, 2k, 4k, 8k, 16k, 32k (DVB-T is generally using the 8k mode). Larger FFT modes lower the overhead with SFN's very significantly. But Doppler effects will make the larger FFT modes of little use in a true mobile environment. Note all PLP's within a DVB-T2 multiplex must all use the same FFT mode.
• DVB-T2 enables 256-QAM modulation. This will allow 8 bits to be encoded at each constellation/frequency slot.
• DVB-T has a fixed and large overhead (8%) from 'pilot-tones' that are used for synchronisation and channel estimation. DVB-T2 has 8 different 'pilot-patterns' - some with very low overhead.

SET TOP BOXES THAT SUPPORT DVB-T2

1. Strong SRT 5409-Professional Range (HD)
2. Strong SRT 5406 (HD)
3. DGTEC DG-FV5800HD
4. Strong SRT5435 HD PVR
5. Strong 5432 HD
6. Strong SRT 5434 (has a patch available)

Peter Cossins is updating the list as more units are found that support DVB-T2.

THE PROPOSED PLAN TO UPGRADE VK3RTV TO DVB-T2

Peter Cossins says the upgrade of VK3RTV will be a 'Rolls Royce' implementation and we are well on the way to funding the change over.

Next page is a block diagram Peter Cossins has drafted of how one channel will operate.

As the 'Combo' Receivers port both CVBS and HDMI outputs irrespective of DVB-S or DVB-S2 input, you can see the path to the HD Encoder only passes through HDMI Switches.
This will improve DVB-S signals as well as providing a direct path to the HD Encoder for DVB-S2 signals.
The implementation is an overlay of the existing system. Apart from the receivers, all other wiring remains and the HDMI switches (very small) and cable is added.

Peter Cossins says the Mini Media Player could be replaced with a HD one if we have enough funds.

CVBS REMOTE
VK3RTV I (RxA)

CVBS TO ATC

CVBS TO MONITOR

CVBS FROM
MEDIA PLAYER

CTRL

VK3RTV2 CONTROLLER

CVBS - HDMI CONVERTER

CTRL

VK3RTV I

HDMI LEADS + 4

CVBS - HDMI CONVERTER   1

2 PORT HDMI SWITCH   1

HDMI

TO HD ENCODER

2 PORT HDMI SWITCH

CVBS

CVBS

HDMI

RX A

RX B

HDMI

2 PORT HDMI SWITCH

VK3RTV2

HDMI LEADS   5

CVBS - HDMI CONVERTER   1

2 PORT HDMI SWITCH   2

VK3RTV.
CONCEPT.

DVBS-S2 RECEIVERS

PUPPIES ON DRUGS

In a brilliant show of COVID-19 marketing, my kids told me that when they took the dog for a walk they went to the local bottle shop. While there at the counter is a bowl full of treats for the customer's pets.

For dogs they have the dog snack called Schmackos.

My kids call Schmackos crack cocaine for dogs.

The idea is that next time you take your dog for a walk, its going to drag you back to the pub.

Well it seems to work.

The kids said one friend they knew had their pet pooch go missing one night.

They looked all around their street but no luck. The next day someone rang them to say they saw their dog. Guess where?

Outside the bottle shop entrance waiting for the roller door to open, looking for another feed of Schmackos.

I thought alcohol was already a guarantee of repeat patronage.

Shopping

'Cash, check or credit?' the attendant asked, after folding items the woman wished to purchase.

As she fumbled for her wallet, he noticed a remote control for a television set in her purse.

'So, do you always carry your TV remote?' he asked.

'No,' she replied, 'but my husband refused to come shopping with me, and I figured this was the most evil thing I could do to him legally.'
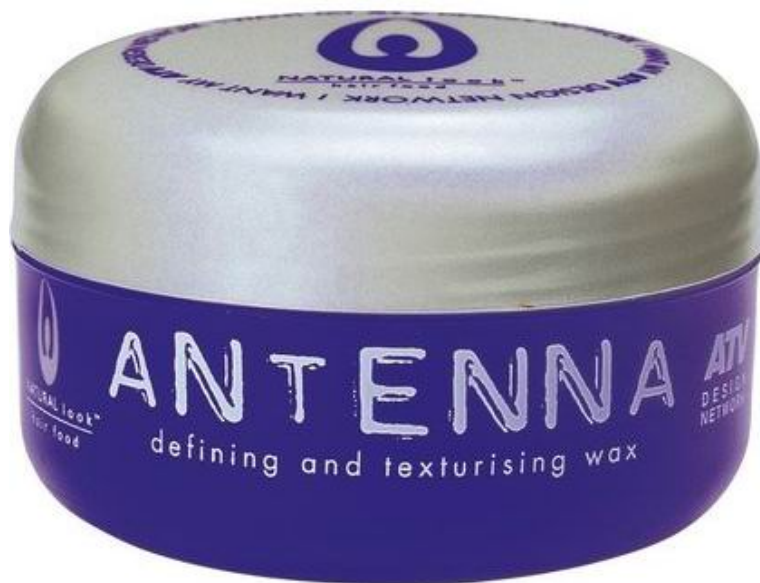
"My transceiver is over here.
That's just my testing equipment."

NO NONSENSE
COFFEE GUIDE
Americano – Black Coffee
Flat White – White Coffee
Cappacino – Frothy Coffee
Latte – Milky Coffee
Espresso – Strong small Coffee
Machiato – Milk topped w/ Coffee
Tea – Not Coffee
Hot Chocolate – Also not coffee!
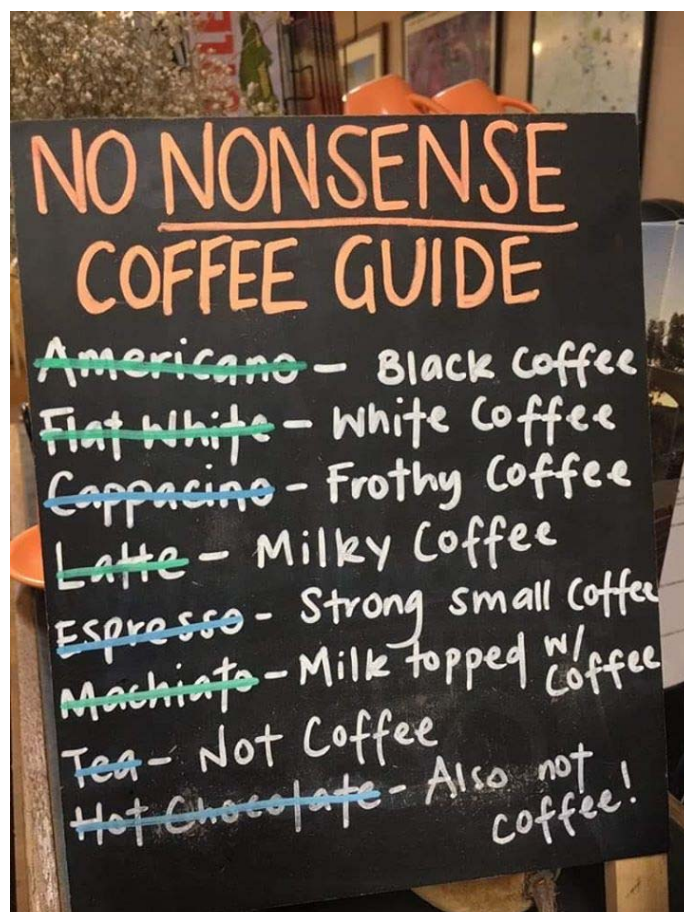
But what about the losses in the smaller connector's…..?

THAT GLORIOUS MOMENT WHEN THE SIGN INSTRUCTS YOU TO DO A BURN OUT

ANTENNA

defining and texturising wax

BAND CONDITION SPRAY

DESIGNED TO ENHANCE HF PROPAGATION

WORK RARE DX EASILY

WORKS FOR ALL MODES

WILL NOT DAMAGE THE IONOSPHERE

LICENCED AMATEUR USE ONLY

Day 12 of lockdown. I still can't find the other sock!

PEOPLE MUST NOT COUGH NEAR YOU, THEY MUST COUGH FAR AWAY.
IF YOU HEAR SOMEONE COUGHING TELL THEM TO...
FAR COUGH

YOU ARE THE BEST
HAM RADIO OPERATOR
VERY SPECIAL. VERY TALENTED
REALLY TERRIFIC. HIGH IQ.
OTHER HAM RADIO OPERATORS?
FAKE NEWS.
BELIEVE ME

Why did the chicken cross the road?
Because the chicken behind it didn't know how to socially distance properly.

Ran out of toilet paper and started using lettuce leaves.
Today was just the tip of the iceberg, tomorrow romaines to be seen.

My mom always told me I wouldn't accomplish anything by lying in bed all day.
But look at me now, ma! I'm saving the world!

After years of wanting to thoroughly clean my house but lacking the time, this week I discovered that wasn't the reason.

If I keep stress-eating at this level, the buttons on my shirt will start socially distancing from each other.

Every few days try your jeans on just to make sure they fit.
Pyjamas will have you believe all is well in the kingdom.

Yesterday I ran out of soap and body wash and all I could find was dish detergent.
Then it Dawned on me.

Being quarantined with a talkative child is like having an insane parrot glued to your shoulder

This morning I saw a neighbour talking to her cat.
It was obvious she thought her cat understood her.
I came into my house, told my dog–we laughed a lot.

Day 121 at home and the dog is looking at me like,
"See? This is why I chew the furniture!"
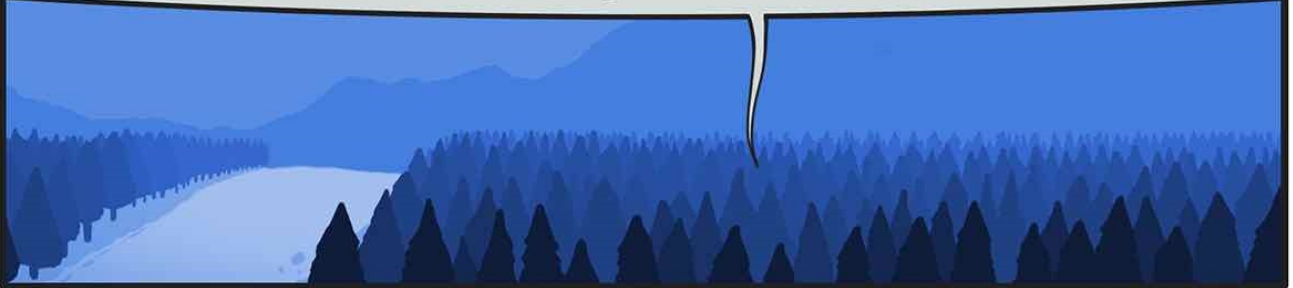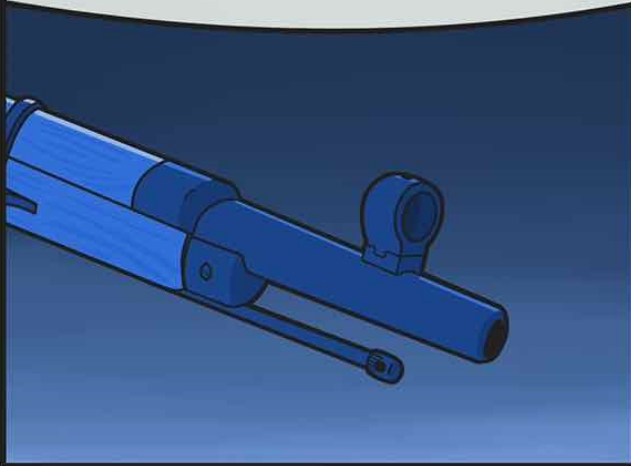
NEVARC Nets

40M Net
Monday, Wednesday and Fridays
10am Local time (East coast)
7.095 MHz LSB
Approximately + or – QRM
7.097 MHz has been used for a while now
Hosted by Ron VK3AHR
"Australia Ham Radio 40 Meter Net"

80M Net
Wednesday 20:30 Local time
3.622 MHz LSB
Hosted by Ron VK3AHR
Using the club call VK3ANE

2M Nets
Monday at 2000 local time on
VK3RWO repeater
146.975 MHz

President, VK2VU, Gary
Vice President, Tom VK3NXT
Secretary, VK2FKLR, Kathleen
Treasurer, Amy

NEVARC CLUB PROFILE

History

The North East Victoria Amateur Radio Club (NEVARC) formed in 2014.
As of the 7th August 2014, Incorporated, Registered Incorporation number A0061589C.
NEVARC is an affiliated club of the Wireless Institute of Australia and The Radio Amateur Society of Australia Inc.

Meetings

Meetings details are on the club website, the Second Sunday of every month, check for latest scheduled details.
Meetings held at the Belviour Guides Hall, 6 Silva Drive West Wodonga.
Meetings commence with a BBQ (with a donation tin for meat) at 12pm with meeting afterwards.
Members are encouraged to turn up a little earlier for clubroom maintenance.
Call in Via VK3RWO, 146.975, 123 Hz tone.

VK3ANE NETS

HF

7.095 MHz Monday, Wednesday, Friday - 10am Local time   currently using 7097 MHz
3.622 MHz Wednesday - 8.30pm Local time

VHF

VK3RWO Repeater 146.975 MHz–Monday - 8pm Local time
All nets are hosted by Ron Hanel VK3AHR using the club callsign VK3ANE

Benefits

To provide the opportunity for Amateur Radio Operators and Short Wave Listeners to enhance their hobby through interaction with other Amateur Radio Operators and Short Wave Listeners. Free technology and related presentations, sponsored construction activities, discounted (and sometimes free) equipment, network of likeminded radio and electronics enthusiasts. Excellent club facilities and environment, ample car parking.

Website: **www.nevarc.org.au**   **Postal:**   **NEVARC Secretary**
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Facebook: **www.facebook.com/nevicARC/**   **Wahgunyah Vic 3683**